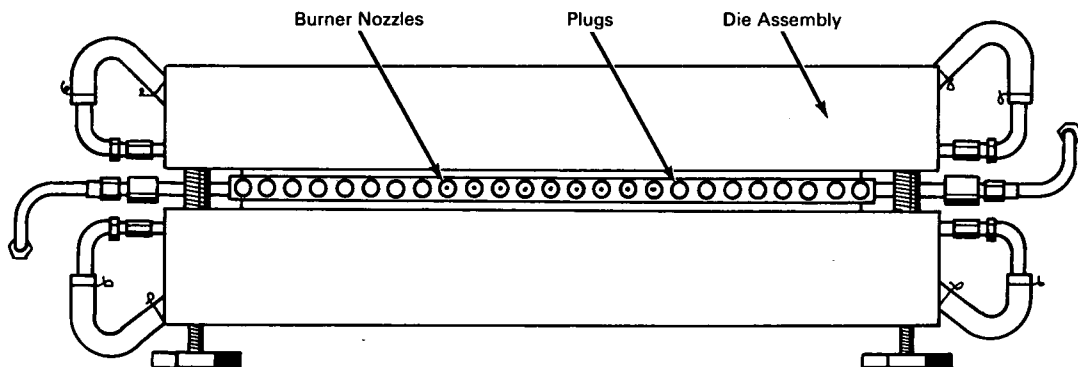


NASA TECH BRIEF



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Heated Die Facilitates Tungsten Forming



The problem:

To form tungsten tubes and other shapes in a press brake. Prior methods required heating the tungsten with a torch or other makeshift means which resulted in uneven heating and consequent high breakage.

The solution:

An improved bottom die assembly which incorporates a heating manifold between two die sections. The manifold has hydrogen-oxygen burners spaced along its length to heat the tungsten during the forming operation.

How it's done:

The two water-cooled die sections are bolted to supports on the press brake. A heater manifold is mounted between the die sections. Closely spaced hydrogen-oxygen burner nozzles extend along the full length of the manifold. The nozzles can be replaced with plugs to reduce the effective length of the manifold to that of the part being formed.

The workpiece is placed in the die and heated by the burners while the top of the press brake forces the part between the working surfaces giving the part the desired shape.

Notes:

1. This bottom forming die for a press brake can be used where the material being worked must be heated in order to be easily and properly formed. The heated die greatly increases the production rate and reduces breakage losses.
2. Water-cooling the die sections greatly increases their life.
3. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio, 44135
Reference: B66-10047

(continued overleaf)

Patent status:

This is the invention of NASA employees and a patent application has been filed. Inquiries concerning license rights may be made directly to the inventors, Messrs. John H. Chattin, John C. Laughlin, Johnny E. Haystrick, and Ray A. Leidy, at Lewis Research Center.

Source: (Lewis-25A)